



Tighe&Bond

**Guilford High School
605 New England Road
Guilford, CT**

**Self-Implementing PCB
Cleanup Plan**

Submitted To:

**Office of Ecosystem Protection EPA-New
England, Region 1**

February 2013

T-0249
February 19, 2013



Kimberly Tisa
PCB Coordinator
Office of Ecosystem Protection
EPA-New England, Region I
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Boston, MA 02114-2020

Re: **Self-Implementing PCB Cleanup Plan
Guilford High School
605 New England Road, Guilford, CT**

Dear Ms. Tisa:

The following Self-Implementing Cleanup Plan is being submitted on behalf of the Town of Guilford, CT for the Guilford High School located at 605 New England Road in Guilford, CT in accordance with 40 CFR 761.61(a). The cleanup is part of the abatement and demolition of the Guilford High School. A new high school will be constructed at the property prior to demolition of the existing school. Currently the site is an occupied school.

Site Background and History

The site consists of one parcel of land totaling 30 acres designated with Property Identification Number 8842 and 8842A by the Town of Guilford Tax Assessor's office. The site is improved with a High School that was originally built in 1958 with additions constructed in 1968 and 1999. Prior to construction of the school, the site was used for farmland.

The building is one-story with the exception of the cafeteria, kitchen, and a boiler room which are in the basement of the 1968 addition. The building has a footprint of approximately 175,000 square feet and is composed of brick, concrete block, and mortar. The perimeter of the school consists of paved parking lots for faculty and students, landscaping, and several athletic fields.

Electrical power supply is provided via an underground line from the street to a vault with three transformers located beneath the loading dock. During the Phase I Environmental Site Assessment (ESA) conducted by Tighe & Bond in 2012, access could not be obtained to the vault since it is owned by Connecticut Light & Power (CL&P) and the Town did not have a key. CL&P was contacted prior to the start of the Phase II ESA to obtain access to the transformer vault; however, access was not granted due to safety concerns about working near live transformers. No reports of spills associated with the transformer vault were found during the Phase I ESA. Visual observation of the vaults interior through ventilation windows was limited and obscured by debris on the floor.

Tighe & Bond contacted CL&P's Environmental Coordinator Kelly O'Neil, in January 2013. Mr. O'Neil stated that he was aware of the upcoming demolition and potential assessment and cleanup requirements for the transformers located at the High School. Tighe & Bond will coordinate with CL&P on the proper closer of the vault during demolition of the building.

A site location map is provided as Figure 1 (Appendix A). A site plan is provided as Figure 2.

The following is a detailed description of the building and additions:

1958 Original Building

The original building constructed in 1958 is a single story, metal framed and concrete block structure. The interior and exterior walls are a combination of brick and concrete block. Additions were added in 1968 and 1999. The building is constructed as slab on grade. The mechanical equipment consists of two oil fired sectional boilers which provide heat and hot water. Two types of heating are supplied from the boilers. Hot water travels through a continuous loop and provides radiant heat through aluminum finned tubing located at the outer perimeter walls. Ceiling mounted fan coil units also receive hot water from the centrally located boilers.

*are
boilers also
in 1958
building*

The interior walls and ceilings are constructed with brick, concrete block, and sheetrock. Limited areas of two coat ceiling plaster on metal lathe were identified. The window frames and sashes are metal. The door frames are metal with both wood and metal doors. The floors are finished with various types of resilient flooring. The exterior facades consist of concrete block and brick. The roofs are both flat and pitched. The flat roofs consist of built up roofing felts and rubber roof membranes. The pitched roofs are covered with asphalt shingles.

1968 Addition

The 1968 addition is a single story, metal framed structure. The interior and exterior walls are a combination of brick and concrete block. The majority of the building is constructed slab on grade with the exception of the lower level cafeteria. The mechanical equipment consists of two oil fired sectional boilers which provide heat and domestic hot water. Two types of heating are supplied from the boilers. Hot water travels through a continuous loop and provides radiant heat through aluminum finned tubing located in heating units along the outer perimeter walls. These heating units contain electric fans used to disperse hot air. Ceiling mounted fan coil units also receive hot water from the boilers located at the lower level adjacent to the cafeteria.

The interior walls and ceilings are constructed with brick, concrete block, and sheetrock. Limited areas of two coat ceiling plaster on metal lathe were identified. The window frames and sashes are metal. The door frames are metal with both wood and metal doors. The floors are finished with various types of resilient flooring. The exterior facades consist of concrete block and brick. The roofs are both flat and pitched. The flat roofs consist of built up roofing felts and spray applied rubberized roof coating. The pitched roofs are covered with asphalt roofing shingles.

1999 Addition

The 1999 addition is a two story, metal framed structure with a full basement. The mechanical equipment consists of gas fueled furnaces that circulate hot water to aluminum finned base board radiators. The interior walls are a combination of concrete block and sheetrock and joint compound. The ceilings are suspended acoustical tiles. The window frames, window sashes, door frames and doors are metal. The floors are finished with various types of resilient flooring. The exteriors are brick. The roof is pitched and consists of asphalt roof shingles. Since this addition was constructed in 1999, it was not sampled for PCB containing building materials and is not part of this SIP.

Previous Investigations

Tighe & Bond subcontracted a Hazardous Building Material Investigation (HBMI) to Eagle Environmental (Eagle) following the CT Bureau of School Facilities (BSF) sampling protocols for PCB-containing building materials. The HBMI was completed in April 2012 and source materials were sampled for PCBs. A summary of the source material sampling results is provided in Table 1 (Appendix B). Source material sampling locations are shown on Figures SO-1 and SO-2. The HBMI report is provided on CD in Appendix C.

Tighe & Bond and Eagle completed a Supplemental PCB Investigation to further evaluate source materials and determine the extent of impacted substrates, soil, and asphalt in September 2012. A summary of the source material and substrate sampling results is provided in Table 1. A summary of soil and asphalt sampling results is provided in Table 3. Substrate material sampling locations are shown on Figures SU-1 and SU-2. Soil and asphalt sampling locations are shown on Figure S-1. The Supplemental PCB Investigation report is provided on CD in Appendix C.

Tighe & Bond completed a semi-destructive HBMI in January and February 2013 to assess previously inaccessible building materials located inside or between walls, roofing materials, and structural components. Porous substrates were not observed to be in contact with PCB source materials identified in these areas. A summary of the source material sampling results is provided in Table 1. Source material sampling locations are shown on Figures SO-1 and SO-2.

Materials Impacted by PCBs

1958 Original Building

Source Materials

Multiple source materials including window caulk, expansion joint caulk, window glazing, and tar paper were identified as containing PCBs ≥ 50 ppm and cleanup of these materials are subject to Federal PCB cleanup regulations as defined in 40 CFR 761.

Multiple source materials were identified as containing concentrations of PCBs greater than 1 ppm but less than 50 ppm. These source materials include caulk, roofing materials, window glazing, and floor wax. Based on these reported concentrations and the initial use of this material during construction in the 1950s, it is Tighe & Bond's opinion that the building materials tested meet the definition of "Excluded PCB Products". As a result, these materials are exempt from the Federal regulations (40 CFR 761, Subpart B) dealing with manufacturing, processing, distribution in commerce, and use of PCBs. However, the Connecticut Regulations for Disposal of PCBs (RCSA 22a-463 through -469) will apply to these source materials.

Substrate Materials

Substrate materials in direct contact with and adhered to source materials with PCBs concentrations ≥ 50 ppm include brick, glazed brick, concrete masonry units (CMUs), concrete window sills, and mortars and cleanup of these materials are subject to Federal PCB cleanup regulations as defined in 40 CFR 761, Subpart B.

Substrate materials in direct contact with and adhered to source materials with PCBs concentrations greater than 1 ppm but less than 50 ppm include CMU, window components, brick, mortars, wood, and concrete and cleanup of these materials are subject to CT PCB cleanup regulations as defined in RCSA 22a-463 through -469.

A summary of PCB-impacted source material and substrates is provided in Table 2. Photographs of source and substrate materials are provided in Appendix D and are cross referenced on Table 2.

1968 Building Addition

Source materials

Window glazing, expansion joint caulk, and window caulk were identified to contain PCBs \geq 50 ppm and cleanup of these materials are subject to Federal PCB cleanup regulations as defined in 40 CFR 761, Subpart B.

Caulk at metal door and window frames, black asphalt on concrete foundation, window glazing, roofing materials, black tar on structural steel, and expansion joint caulk materials contain PCB concentrations greater than 1 ppm and less than 50 ppm. Based on these reported concentrations and the initial use of this material during construction in the 1950s, it is Tighe & Bond's opinion that the building materials tested meet the definition of "Excluded PCB Products". As a result, these materials are exempt from the Federal regulations (40 CFR 761, Subpart B) dealing with manufacturing, processing, distribution in commerce, and use of PCBs. However, the Connecticut Regulations for Disposal of PCBs (RCSA 22a-463 through -469) will apply to the project.

Substrate Materials

Substrate materials in direct contact with and adhered to source materials with PCBs concentrations \geq 50 ppm include window components, brick, and mortar and cleanup of these materials are subject to Federal PCB cleanup regulations as defined in 40 CFR 761, Subpart B.

Substrate materials in direct contact with and adhered to source materials with PCBs concentrations greater than 1 ppm but less than 50 ppm include CMU, window components, brick, mortars, wood, and concrete and cleanup of these materials are subject to CT PCB cleanup regulations as defined in RCSA 22a-463 through -469.

A summary of PCB-impacted source material and substrates is provided in Table 2. Photographs of source and substrate materials are provided in Appendix D and are cross referenced on Table 2.

Soil and Asphalt

Soils and asphalt drip guards located below source materials were identified as containing PCB concentrations greater than 1 ppm but less than 50 ppm. These materials were contaminated by source materials reported to contain PCB concentrations \geq 50 ppm. Cleanup of these materials are subject to Federal PCB cleanup regulations as defined in 40 CFR 761, Subpart B.

Boiler Room

Concentrations of PCBs up to 2.9 ppm were reported in concrete samples collected from oil stained floors beneath the air compressors located in each of the two boiler rooms during the Phase II ESA. The current compressors are not leaking and appear to be less than 10 years old. Based on this, it appears that previous compressors had leaked prior to removal. The concentrations of PCBs in the original compressors are unknown but are assumed to be less than 50 ppm based on the low concentrations detected in the oil stained concrete. Based on this, it is assumed that cleanup of these materials are subject to CT PCB cleanup regulations as defined in RCSA 22a-463 through -469.

Other PCB Containing Materials

Electrical capacitors and air filters installed in the heating units of the 1968 addition are assumed to contain concentrations of PCBs ≥ 50 ppm, these materials are subject to Federal PCB cleanup regulations as defined in 40 CFR 761, Subpart B.

Lighting ballasts have also been known to contain PCBs; however, based on our inspection the original ballasts installed in both the 1958 and 1968 building sections have been replaced with non-PCB containing equipment. If PCB containing lighting ballasts are encountered during demolition they will be assumed to contain concentrations of PCBs ≥ 50 ppm and will be subject to Federal PCB cleanup regulations as defined in 40 CFR 761, Subpart B.

Standard Operating Procedures

Source Sampling

A minimum of three samples of each source material were collected for PCB analysis, additional samples were collected for greater quantities of source materials as indicated in Table 1. Source material sampling involved using hand tools to collect representative bulk source materials. Tools utilized to collect samples were decontaminated prior to and in between sampling using a soap and water rinse followed by a hexane wash to prevent cross contamination of samples. Each sample was placed in an individual, laboratory supplied two or four ounce glass container, sealed with a Teflon-lined cap, labeled, and placed in an ice packed cooler for transportation from the site. Samples were stored in the cooler or in a refrigerator until delivered to or picked up by the laboratory under proper chain of custody.

A total of 207 source samples were collected from the original 1958 structure and the 1968 addition. Source sampling was completed as part of both the HBMI (50 samples) and the Supplemental PCB Investigation (157 samples).

Substrate Sampling

A total of 223 substrate samples were collected from the original 1958 building and the 1968 addition. Substrate sampling was completed as part of both the HBMI (45 samples) and the Supplemental PCB Investigation (178 samples).

Substrate samples were collected from porous materials adjacent to source materials identified as having PCB concentrations greater than 1 ppm in accordance with EPA Region I *Standard Operating Procedure for Sampling Porous Surfaces for Polychlorinated Biphenyls (PCBs) Revision 4, May 5, 2011*.

Bulk substrate samples were collected using a mechanical drill fitted with a masonry bit to drill holes approximately one-half inch deep into the substrate. A clean sheet of paper was taped to the substrate directly below the sample holes to capture the sample material generated by the drilling. Multiple holes were drilled as required to obtain enough substrate material for analysis. Each sample was transferred to an individual laboratory supplied two or four ounce, Teflon sealed, labeled glass container, kept chilled, and delivered to or picked up by the laboratory under proper chain of custody. The paper used to collect the substrate sample was discarded and a clean sheet of paper was used for each successive substrate sample collection. Residual bulk substrate materials were washed from the drill bit with soap and water followed by decontamination using hexane prior to and in between each successive sampling to avoid cross contamination.

Several rounds of substrate sampling were conducted. Substrates from each identified source area were first sampled from the first or second course (1 inch to 9 inches) of substrate material adjacent to the source. The distance at which the first round samples were collected was selected based on source material concentration and building construction. Substrates corresponding to source materials with concentrations greater than 50 ppm were sampled at a greater distance from the source than those corresponding to source materials with concentrations less than 50 ppm. Consideration was also given to building construction and demolition methodologies when selecting sample locations. Samples were collected from substrates next to mortar joints that could easily be broken apart using typical demolition tools such as handheld jackhammers. Additional rounds of substrate sampling were conducted based on analytical results reported for the first round of samples. Substrate materials with reported PCB concentrations greater than 1 ppm were sampled at the next course or greater distance away from the source material until concentrations of PCBs less than 1 ppm were achieved.

Soil and Asphalt Sampling

A total of 66 soil and 26 asphalt samples were collected from the ground surface outside of the original 1958 building and the 1968 addition. Soil sampling was completed in two events; Round 1 (25 samples) and the Round 2 (41 samples).

Soil and asphalt samples were also collected from the ground below source materials containing concentrations of PCBs greater than 1 ppm. Asphalt samples were collected from the drip guards located along the base of the exterior walls which extend approximately one foot away from the wall. Soil samples were collected from one inch away from the outer edge of the drip guards. Soil samples were collected along the drip line of the building in areas without an asphalt drip guard.

The first round of soil samples were collected from 0 to 3 inches below ground surface (bgs). Based on analytical results reported for the first round of samples a second round of samples was collected from sample locations with reported concentrations of PCBs greater than 1 ppm. The second round of samples was collected from 1 foot bgs at the same location as the 0-3 inch samples, soil samples were also collected from 0-3 inches bgs at locations 5 feet farther away from the building and in line with the original sample locations. Additional asphalt samples were not collected from sample locations with reported concentrations of PCBs greater than 1 ppm because asphalt drip guards in these areas will be removed during demolition and appropriately managed as PCB contaminated material.

Soil and asphalt sampling involved using hand tools to collect representative samples from the ground surface below source materials known to contain PCB concentrations greater than 1 ppm. Tools utilized to collect samples were decontaminated prior to and in between sampling using a soap and water rinse followed by a hexane wash to prevent cross contamination of samples. Each sample was placed in an individual, laboratory supplied two or four ounce glass container, sealed with a Teflon-lined cap, labeled, and placed in an ice packed cooler for transportation from the site. Samples were stored in the cooler or in a refrigerator until delivered to or picked up by the laboratory under proper chain of custody.

Boiler Room Sampling

Concentrations of PCBs up to 2.9 ppm were reported in samples collected during the Phase II ESA from oil stained floors beneath the air compressors located in each of the two boiler rooms. Concentrations of PCBs greater than laboratory reporting limits were not reported for sub-slab soil samples collected from beneath the stained areas of the boiler rooms. Six additional concrete chip samples were collected during the Supplemental PCB Investigation from the perimeter of the stained area beneath the compressors. Samples were collected

from the top 1 inch of the concrete floors approximately 1 foot away from the edge of the observed staining. Concentrations of PCBs were not reported at concentrations above 1 ppm in the six samples collected during this investigation.

Laboratory Analyses

Samples collected during the HBMI and Supplemental PCB Investigation were analyzed at Phoenix Environmental Laboratories, Inc. located in Manchester, CT (Phoenix). PCB extraction was performed using USEPA Soxhlet Extraction Method 3540C and analyzed using EPA Analytical Method SW846 8082. Laboratory analyses also followed CT Department of Energy and Environmental Protection (CTDEEP) Reasonable Confidence Protocols (RCPs). Laboratory analytical reports for the HBMI and Supplemental PCB Investigation are provided within the respective reports on CD in Appendix C.

Cleanup Plan

General Approach

The general approach of this Self-Implementing Cleanup will consist of the following:

- Removal of PCB bulk product waste (i.e. source materials) from the building for disposal at a TSCA/RCRA Hazardous Waste facility or state-permitted landfill
- Removal of PCB bulk product waste (i.e., building substrates with attached PCB caulk containing ≥ 50 ppm) for disposal as a ≥ 50 ppm PCB waste at a TSCA/RCRA Hazardous Waste facility or State-Permitted Landfill
- Removal of PCB remediation waste (i.e., building substrates without attached PCB caulk containing ≥ 50 ppm) for disposal as a ≥ 50 ppm PCB waste at a TSCA/RCRA Hazardous Waste facility (if needed)
- Removal of PCB remediation waste with < 50 ppm PCBs (i.e., building substrates located adjacent to < 50 ppm PCB caulk) for disposal in a state-permitted non-hazardous waste landfill
- Excavation and disposal of soil and asphalt as a PCB Remediation Waste < 50 ppm at a non-TSCA disposal facility
- Removal of Excluded PCB Products/CT Regulated Waste for disposal at a State-Permitted landfill
- Collection of verification samples to demonstrate that cleanup levels have been met
- Control of dust during demolition to minimize the spread of PCBs
- Contingency plans for additional cleanup of bulk product, remediation waste, and CT regulated waste if verification sampling indicates that the cleanup goal of 1 ppm for PCBs has not been achieved.

Following initial sampling may require additional

Additional activities will be conducted as part of the project which are not covered by this SIP but are provided within this document for information purposes including the following:

- Abatement and disposal of hazardous building materials (e.g. asbestos, lead paint, universal wastes, mercury containing equipment) at licensed facilities
- Demolition of building and disposal of wastes at licensed facilities and re-use of clean building materials in accordance with CTDEEP regulations

1958 Original Building

Source Materials

During demolition, source materials containing concentrations of PCBs ≥ 50 ppm will be removed and disposed of as PCB Bulk Product Waste. These materials include window caulk, expansion joint caulk, window glazing, and tar paper.

During demolition, source materials containing concentrations of PCBs < 50 ppm will be removed and disposed of as an Excluded PCB Product/CT Regulated Waste. These source materials include caulk, roofing materials, window glazing, and floor wax.

Substrate Materials

Substrates impacted by a PCB source material will be removed up to the point where sampling data indicates that concentrations of PCBs are ≤ 1 ppm. Substrates impacted by a source material containing concentrations of PCBs ≥ 50 ppm will be removed and disposed of as PCB Bulk Product Waste. Substrates impacted by a source material containing concentrations of PCBs < 50 ppm will be removed and disposed of as an Excluded PCB Product/CT Regulated Waste.

Cleanup Approach

A summary of the cleanup approach for the 1958 original building including materials designed to be handled as a TSCA-regulated waste or Excluded PCB Products/CT Regulated Waste is provided in Table 2. The extent of substrate removal and confirmatory sampling is also provided in Table 2. Photographs of materials are provided in Appendix D and cross referenced on Table 2.

1968 Building Addition

Source Materials

During demolition, source materials containing concentrations of PCBs ≥ 50 ppm will be removed and disposed of as PCB Bulk Product Waste. These materials include window glazing, expansion joint caulk, and window caulk.

During demolition, source materials containing concentrations of PCBs < 50 ppm will be removed and disposed of as an Excluded PCB Product/CT Regulated Waste. These source materials include caulk at metal door and window frames, black asphalt on concrete foundation, window glazing, roofing materials, black tar on structural steel, and expansion joint caulk.

Substrate Materials

Substrates impacted by a PCB source material will be removed up to the point where sampling data indicates that concentrations of PCBs are ≤ 1 ppm. Substrates impacted by a source material containing concentrations of PCBs ≥ 50 ppm will be removed and disposed of as PCB Bulk Product Waste or Remediation Waste. Substrates impacted by a source material containing concentrations of PCBs < 50 ppm will be removed and disposed of as an Excluded PCB Product/CT Regulated Waste.

Cleanup Approach

A summary of the cleanup approach for the 1968 addition including materials designed to be handled as a TSCA-regulated waste or Excluded PCB Products/CT Regulated Waste is provided in Table 2. The extent of substrate removal and confirmatory sampling is also provided in Table 2. Photographs of materials are provided in Appendix D and cross

referenced on Table 2.

Soil and Asphalt

Soils and asphalt drip guards located below source materials were identified as containing PCB concentrations greater than 1 ppm but less than 50 ppm. These materials were contaminated by source materials reported to contain PCB concentrations greater than 50 ppm, as such these substrates will be removed and disposed of as PCB Remediation Waste.

The plan for soil and asphalt excavation, including the extent and depth is shown on Figure S-2. The cleanup goal will be 1 ppm for total PCBs. Soil excavation will be conducted with a flat blade bucket to minimize over excavation. Work will be conducted in a fashion to minimize dust and the area may be misted with water to control dust if necessary. Soil will be stored according to the procedures outlined below for later off-site disposal of as a PCB Remediation Waste at a non-TSCA (<50 ppm) facility.

After excavation, verification samples will be collected on a 5 foot grid pattern in accordance with 761.61(a)(6) for analysis of PCBs by EPA Methods 3540C (soxhlet extraction) and 8082.

Compositing of soil samples may be conducted in accordance with 761.289(b)(1) whereby a maximum of nine samples will be composited and the maximum area enclosing a nine grid point composite is two grid intervals bounded by three collinear grid points. Where the depth of excavation exceeds 1 foot, samples will be collected from the sidewalls on a 5-ft grid pattern. Duplicate samples will be collected at a frequency of 5%.

Boiler Room

Concentrations of PCBs up to 2.9 ppm were reported in samples collected from oil stained floors beneath the air compressors located in each of the two boiler rooms during the Phase II ESA. The concrete floors beneath the compressors will be removed and disposed of as Excluded PCB Product/CT Regulated waste.

Verification sampling of concrete and soil will be conducted for materials left in place after removal of the contaminated floor slab according to CTDEEP guidelines.

Other PCB Containing Materials

PCB containing capacitors are assumed to contain PCB concentrations ≥ 50 ppm and will be disposed of as PCB Bulk Product waste. Air filters associated with the 1968 heating units are assumed to contain fragments of materials containing PCB concentrations ≥ 50 ppm and will be disposed of as PCB remediation waste.

Transformer

As discussed above, CL&P did not allow Tighe & Bond to access the transformer vault for safety reasons. No reports of spills associated with the transformer vault were found during the Phase I ESA. Visual observation of the vaults interior through ventilation windows was limited and obscured by debris on the floor. CL&P is aware of the upcoming demolition and potential assessment and cleanup requirements for the transformers located at the High School. Tighe & Bond will coordinate with CL&P on the proper closure of the vault during demolition of the building. Documentation will be provided in the PCB Cleanup Report for this project.

Oversight and Air Monitoring

All work will be overseen by the project LEP, Jim Olsen who will advise the Town, EPA and CTDEEP of the project progress. The Contractor will be overseen in the field by a Tighe & Bond environmental scientist. Field notes will be taken on a daily basis and photo-documentation of the project will also be conducted.

The field scientist will monitor dust control procedures implemented by the Contractor. Additionally, Tighe & Bond will implement an air monitoring program to monitor dust levels. A DataRam PDR-1000 air monitoring instrument or equivalent will be used to monitor conditions. Prior to demolition, the instrument will be used to monitor conditions over an 8-hour period to establish background conditions. During demolition, the instrument will be used to monitor air conditions over the 8-hour work day on a measuring frequency of 1 minute. The instrument will be set up within 10 feet outside of the work zone. Conditions will be deemed unacceptable and corrective measures will be taken if the mean air particulate concentrations are 0.15 mg/m^3 over background conditions.

Contractor Work Plan

The Town plans on publically bidding the abatement, cleanup, and demolition associated with the Guilford High School Project. As part of the Bid Documents, the Town will require the Contractor to submit a Work Plan to EPA for approval. The Contractor Work Plan will contain procedures for removal, dust control, storage, decontamination, transportation and disposal of TSCA and CT Regulated PCB Materials.

Reporting

A summary report of the cleanup activities will be prepared for submittal to EPA and CTDEEP following completion of cleanup activities. The report will contain a narrative of cleanup activities, verification sampling results, photo-documentation, map of final excavation showing extent and depth, analytical data, summary of decontamination activities, and waste disposal manifests and records.

Interim Management Plan

The following Interim Management Plan (IMP) was developed in conjunction with CTDEEP and EPA to reduce interior exposure risks to the occupants of the high school until its scheduled demolition in the spring of 2015. Three potential exposure pathways were identified; adsorption through dermal contact, particulate ingestion, and inhalation. On January 20, 2013, indoor air and surface wipe samples were collected from common areas of the high school to assess potential exposure risks.

Exposure Assessment

Wipe Sampling

A total of 12 surface wipe samples (W-1 through W-12) were collected from flat surfaces inside common areas of the high school. Samples were collected by swabbing a pre-measured 100 cm^2 area with a hexane saturated sterile gauze pad. The pads were then transferred to individual laboratory supplied sample jars and chilled on ice until delivery to the laboratory for PCB analysis by EPA method 8082 using soxhlet extraction. Details for each sample are summarized in the table below. Sample locations are shown on Figure SO-1 and SO-2. Laboratory analytical reports for the exposure samples are included as Appendix E

adsorption
instead
of adsorption?

Indoor Air Sampling

A total of 12 indoor air samples (IA-1 through IA-12) were collected from the same common areas as the wipe samples. Air samples were collected using a vacuum pump to draw air through laboratory supplied low volume polyurethane foam (PUF) encased in glass tubing. Air was drawn through the PUFs at a flow rate of 4 liters per minute for approximately 7 hours. Sample height was approximately 3.5 feet above the floor. Each sample was delivered to the laboratory for PCBs analysis using EPA method TO-10A. Details for each sample are summarized in the table below. Sample locations are shown on Figure SO-1 and SO-2.

Sample ID		Sample Location and Surface Wiped	Nearby Source Material Numbers	Sample Results	
Wipe	Air			Wipe (ug/100 CM ²)	Air (ug/m ³)
W-1	IA-1	Main gymnasium, metal bracing on perimeter of floor	55 (joint caulk), 59 (floor Wax), Tar paper beneath the floor	ND<1.0	ND< 0.070
W-2	IA-2	Rear gymnasium, metal bracing on perimeter of floor	55, 59, and tar paper beneath the floor	ND<1.0	ND< 0.070
W-3	IA-3	Cafeteria, table tops	47/48 (joint caulk), 43 (door frame and joint caulk), 45 (door frame/window caulk), 45A/46 (window glazing)	ND<1.0	ND< 0.070
W-4	IA-4			ND<1.0	ND< 0.070
W-5	IA-5			ND<1.0	ND< 0.070
W-6	IA-6	West side of library, top of heating unit	40 (window glazing)	ND<1.0	ND< 0.070
W-7	IA-7	East side of library, top of wooden bookshelf	40	ND<1.0	ND< 0.070
W-8	IA-8	Classroom 1958 structure, desk top	32 (caulk on building seams/sills), 63 (window sill caulk)	ND<1.0	ND< 0.070
W-9, W-9A, and W-9B	IA-9	Classroom 1968 addition, green countertop	30/31 (louver/residual window caulk), 37 (caulk on plastic fascia)	9=1.8 9A=2.5 9B=ND<1.0	ND< 0.070
W-10	IA-10	Classroom 1968 addition, black countertop	40 and 45	10=1.8 10A=ND<1.0	ND< 0.070
W-11	IA-11	Classroom 1968 addition, desktop	30/31, 32, 33, and 37	ND<1.0	ND< 0.070
W-12	IA-12	Classroom 1968 addition, desktop	30/31, 32, and 37	ND<1.0	ND< 0.070

Management Plan and Conclusions

Inhalation

High PCB concentrations (>500 ppm) were identified in caulk around the exterior air intake louvers connected to the heating units inside the 1958 and 1968 classrooms. Metal barriers were installed over the louvers to prevent intake of PCB impacted building materials into the heating units. The heating units were also observed to be equipped with particulate filters which may have captured PCB particulates during operation of the units. The particulate filters will be assumed as a PCB waste ≥ 50 ppm and appropriately disposed of during demolition.

PCBs were not reported at concentrations above the laboratory reporting limit of 0.070 ug/m^3 ; which is below the EPA threshold of 0.6 ug/m^3 in a high school. A PCB inhalation hazard is not present in the areas tested at the high school based on results of the indoor air samples. No further assessment or cleanup actions are planned prior to demolition in association with indoor air quality at the high school.

Dermal Contact and Ingestion

High PCB concentrations were identified in caulk at expansion joints in the cafeteria. Metal plates were installed to limit dermal contact with this caulk and to prevent migration of caulk particles. Additional source materials with concentrations >500 ppm were not identified on the interior of the school.

Wipe sample locations W-9 and W-10 were reported to have PCB concentrations greater than the CT Department of Health standard of 1 ug/100 cm^2 . PCBs were not reported at concentrations above the laboratory reporting limit of 1 ug/100 cm^2 in the other 10 wipe samples. CTDEEP and EPA were notified of these results and recommended that the two impacted surfaces be cleaned and re-sampled. On February 6, 2013 Tighe & Bond cleaned the two surfaces using soapy water followed with a hexane wash. Wipe samples W-9A and W-10A were then collected from the cleaned areas to confirm that the cleaning had removed detectable PCB impacts from the surfaces. PCBs were not reported at concentrations above the laboratory reporting limit of 1 ug/100 cm^2 in sample W-10A, PCBs were reported at a concentration of 2.5 ug/100 cm^2 in sample W-9A. Following receipt of the analytical report for sample W-9A Tighe & Bond returned to the school and re-cleaned the counter surface where samples W-9 and W-9A were collected using an abrasive chlorinated cleaner followed with soapy water and hexane cleaning. Wipe sample W-9B was collected from the same area as the previous samples. PCBs were not reported at concentrations above the laboratory reporting limit of 1 ug/100 cm^2 in sample W-9B. A chip sample was also collected from the green counter top where the W-9 series samples were collected; this sample (GCT-1) was reported to contain a PCB concentration of 1.4 ug/Kg and will be disposed of as a Excluded PCB Product/CT Regulated Waste.

The materials used to clean the two surfaces were collected and stored in a 5-gallon pail and will be disposed of as a PCB waste >50 ppm at a TSCA approved facility by the Town's waste management contractor.

Interior dermal contact and ingestion risks are under control at the high school based on wipe sample results and the preventative measures taken by the Town. No further interior assessment or cleanup actions are planned prior to demolition of the high school.

Certification

The Town of Guilford is the owner of the property and the party conducting the cleanup. The Town of Guilford certifies that all sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the cleanup site are on file with Tighe & Bond located at Suite 900, 213 Court Street in Middletown, CT are available for EPA inspection. A certification is provided in Appendix F.

The contact for the Town is:

Cliff Gurnham
Director of Operations
Guilford Board of Education
701 New England Rd
Guilford, CT 06437
(203) 458-0002

Schedule

The following is the preliminary schedule for the Guilford High School PCB Cleanup Project.

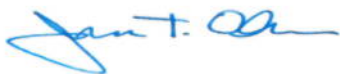
Task	Start Date	Completion Date
Bulk Product and Remediation Waste Removal	April 2015	September 2015
Soil Excavation	April 2015	September 2015
Confirmatory Sampling	May 2015	September 2015
Report Preparation	October 2015	January 2016

It should be noted that additional time may be required if verification samples have PCB concentrations greater the 1 ppm and additional removal and/or excavation is required.

If you have any questions or comments, please contact me at (860) 704-4761 or jtolsen@tighebond.com.

Very truly yours,

TIGHE & BOND, INC.



James T. Olsen, LEP
Senior Project Manager, Associate

Enclosures

- Appendix A - Figures
 - Figure 1 - Site Location Map
 - Figure 2 - Site Plan
 - SO-1 PCB Source Sampling Locations - Main Floor
 - SO-2 PCB Source Sampling Locations - Roof and Lower Level

SU-1 PCB Substrate Sampling Locations – Main Floor
SU-2 PCB Substrate Sampling Locations – Roof and Lower Level
S-1 Soil and Asphalt Sampling Locations
S-2 Soil and Asphalt Excavation Plan
Appendix B – Tables
 Table 1 – Summary of PCB Source and Substrate Materials
 Table 2 – Summary of PCB Source and Substrate Material Removal Requirements
 Table 3 – Summary of Soil and Asphalt Analytical Data
Appendix C – HBMI and Supplemental PCB Investigation Reports
Appendix D – Photographs
Appendix E – Laboratory Reports
Appendix F – Certification

cc: Cliff Gurnham - Guilford Board of Education
 Gary Trombly – CTDEEP
 Randall Luther – Tai Soo Kim

SIDE-B

SIDE-D



**BOLDED SAMPLE NUMBERS
INDICATE PRESENCE OF PCBs IN A
CONCENTRATION > 1 PPM.**

**BOXED SAMPLE NUMBERS
INDICATE PRESENCE OF PCBs IN
A CONCENTRATION > 50 PPM.**

SIDE-A (STREET SIDE)

GUILFORD HIGH SCHOOL
 605 NEW ENGLAND ROAD, GUILFORD, CT 06430
 PCB Substrate Sample Locations
 Main Floor
 DATE: 9/6/2012
 SCALE: NOT TO SCALE
 FIGURE SU-1